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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/760,661	01/17/2001	Oscar P. Pinto	219.39278X00	4549

7590 09/14/2004
SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A.
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MINNEAPOLIS, MN 55402

EXAMINER

BARNES, CRYSTAL J

ART UNIT PAPER NUMBER

2121

DATE MAILED: 09/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/760,661

Applicant(s)

PINTO, OSCAR P.

Examiner

Crystal J. Barnes

Art Unit

2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-12 is/are allowed.
- 6) ☒ Claim(s) 1,3-7,13 and 14 is/are rejected.
- 7) ☒ Claim(s) 2,8,9 and 15 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. The following is a Non-Final Office Action in response to Amendment received on 22 July 2004. Claims 1 and 15 have been amended. Claims 1-15 remain pending in this application.

Drawings

2. The amendment to the specification to add the reference sign was received on 22 July 2004. These corrections are acceptable.

Specification

3. The amendment to the specification to add figure 13 was received on 22 July 2004. This correction is acceptable.

Response to Arguments

4. Applicant's arguments, see Remarks page 7, filed 22 July 2004, with respect to the rejection of claims 1, 3, 5, 7-9, 13 and 14 under 35 USC 102(e) have been fully considered and are persuasive. Therefore, the rejection has been withdrawn.

However, upon further consideration, a new ground(s) of rejection is made in view of US Pub. No. 2002/0195983 A1 in view of Krause.

Claim Rejections - 35 USC § 102

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1, 3-5, 7, 13 and 14 are rejected under 35 U.S.C. 102(e) as being anticipated by US Pub. No. 2003/0195983 A1 in view of Krause.

As per claim 1, the Krause reference discloses a method of discovering topology of a subnet fabric, comprising providing a plurality of elements in a subnet fabric (see page 3 [0041], "SAN fabric"), said elements including switches (see page 3 [0042], "switches 36"), endnodes (see page 3 [0043], "endnodes"), and a subnet manager (see page 3 [0045], "SANIC 42"); issuing a packet (see page 3 [0050], "message") from said subnet manager ("SANIC 42") to a first switch (see page 3 [0044], "switches 36") connected thereto; reissuing a packet from said first switch ("switches 36") to every element ("routers 38, endnodes 34 and 35") connected thereto; repeating said reissuing from every switch ("switches 36") which receives a packet ("message") until all elements (see page 3 [0043],

"endnodes, switches 36, routers 38") and all paths (see page 7 [0100], "path") therebetween have received at least one packet ("message"); issuing a return packet (see page 3 [0044], "return acknowledgement frames") from an endnode ("endnodes") in response to a packet (see page 5 [0077], "data has reached its destination").

As per claim 3, the Krause reference discloses node identification numbers (see pages 6-7 [0091], "source LID, destination LID, single LID") identify nodes ("endnodes, switches, routers") of said subnet fabric (see page 7 [0092], "SAN fabric") so that path discovery is automatic.

As per claim 4, the Krause reference discloses said return packets (see page 8 [0112], "ACK or NAK frame") returns along the same path ("symmetric path") as originally sent unless a switch ("switches") through which it passes has received an earlier packet ("request frame").

As per claim 5, the Krause reference discloses every element (see page 6 [0089] and page 7 [0101], "naming scheme for endnodes, switches routers") and every port (see page 8 [0111], "port") therein are identified by number (see page 6 [0089] and page 7 [0101], "GUID") and a list is made in every packet (see page 8 [0112], "request, ACK, NAK frames") of all elements ("endnodes, switches,

routers") and ports ("port") through which said packet ("request, ACK, NAK frames") passes (see page 7 [0105], "virtual lanes").

As per claim 7, the Krause reference discloses a switch (see page 8 [0112], "switches") receiving a packet ("request frame") which has passed therethrough before will issue a return packet ("NAK").

As per claim 13, the Krause reference discloses a method of discovering topology of a subnet fabric, comprising providing a plurality of elements in a subnet fabric (see page 3 [0041], "SAN fabric"), said elements including switches (see page 3 [0042], "switches 36"), endnodes (see page 3 [0043], "endnodes"), and a subnet manager (see page 3 [0045], "SANIC 42"); assigning a unique identifier (see page 6 [0089] and page 7 [0101], "GUID" and [0091], "LID") to each element ("endnodes, switches, routers") and each port ("port") thereof in said subnet fabric ("SAN fabric"); determining a directed route packet ("network endpoints and target of frames routed") using said identifiers ("GUID"); issuing said packet (see page 3 [0050], "message") from said subnet manager ("SANIC 42") to determine all paths (see page 7 [0105], "physical links 272") in said subnet fabric ("SAN fabric").

As per claim 14, the Krause reference discloses said packet (see page 12 [0171], "frame") is issued using a broadcast method ("broadcasting").

Claim Rejections - 35 USC § 103

7. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Pub. No. 2003/0195983 A1 in view of Krause in view of USPN 5,884,036 to Haley.

As per claim 6, the Krause reference does not expressly disclose said packet contains a maximum hop count and a hop pointer indicating if said maximum hop count has been reached.

The Haley reference discloses

(see column 5 lines 53-64, "... TOPOLOGY_REQUEST message, it sets the HOP_COUNT field to a predetermined value. ... Every succeeding switch to receive this message increments the value of the HOP_COUNT field by one.")

(see columns 6-7 lines 63-5, "... packet's HOP_COUNT is greater than the HOP_COUNT stored in the table packet ... discard the incoming message packet ...")

(see column 7 lines 50-59, "... this HOP_COUNT is tested to determine if it is greater than a predefined maximum hop count. If it is, the switch ... discards the packet. This is a fail-safe mechanism ...")

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to modify the system area network taught by the Krause reference with the method of determining the topology of a network taught by the Haley reference to include the special cell signaling emitted by each node of the network.

One of ordinary skill in the art would have been motivated to include the special cell signaling emitted by each node of the network to provide reliable operation in a network containing physical loops where undesirable looping of topology information cells are avoided.

Allowable Subject Matter

9. Claims 2, 8, 9 and 15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

10. Claims 10-12 are allowable.

11. The following is a statement of reasons for the indication of allowable subject matter:

As per claim 2, the prior art of record taken alone or in combination fail to teach said packet includes a batch request for recovering a plurality of information from each endpoint that receives said packet.

As per claim 8, the prior art of record taken alone or in combination fail to teach each switch receiving a packet copies the incoming packet after adding the port number at which the packet is received.

As per claim 10, the prior art of record taken alone or in combination fail to teach a packet containing a plurality of job requests in a batch request, each job request performing a job on each endnode reached.

As per claim 15, the prior art of record taken alone or in combination fail to teach a packet is also issued using a batch request.

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to data routing in general:

USPN 6,748,559 B1 to Pfister et al.

USPN 6,400,281 B1 to Darby, Jr. et al.

US Pub. No. 2002/0133620 A1 to Krause

US Pub. No. 2001/0024434 A1 to Ayyagari et al.

Pearlman, M.R. et al., "Using multi-hop acknowledgements to discover

and reliably communicate over unidirectional links in ad hoc

networks", IEEE Wireless Communications and Networking

Conference, Volume 2, 23-28 Sept. 2000, Pages: 532 - 537.

Lansdowne, Z.F., "A stopping rule for link failure detection", IEEE

Transactions on Communications, Volume: 41, Issue: 4, April

1993, Pages: 528 - 530.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Crystal J. Barnes whose telephone number is 703.306.5448 or 571.272.3679 after 14 October 2004. The examiner can normally be reached on Monday-Friday alternate Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on 703.308.3179 or 571.272.3687 after 14 October 2004. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CJB
10 September 2004


Anthony Knight
Supervisory Patent Examiner
Group 3600